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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,208	08/28/2003	Andrew W. Phillips	GP-302782	7158

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EXAMINER	
NGUYEN, XUAN LAN T	
ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/650,208	PHILLIPS ET AL.	
	Examiner	Art Unit	
	Lan Nguyen	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10 and 12-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10 and 12-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-10 and 12-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lentz et al. (USP 5,216,606).

Re: claim 1, Lentz et al. show a cooling system for cooling a friction device, as in the present invention, comprising: a flow control device 82 that controls a flow of cooling fluid through said friction device 14; and a controller 42 that estimates a temperature state of said friction device based on an estimated heat rate of said friction device by the signal 66 from a temperature sensor, calculates a flow command based on said temperature state and operates said flow control device based on said flow command, as stated in the Abstract.

Re: claim 3, Lentz uses various sensors with output signals 56-62 to determine a friction device torque and a friction device slip speed and calculates said heat rate of said friction device based on said friction device torque and said friction device slip speed signal.

Re: claim 4, Lentz also shows a sump 84 for collecting said flow of fluid; and a sump temperature sensor that generates a sump temperature signal 66, wherein said temperature state is further based on said sump temperature signal.

Re: claim 5, Lentz also shows said temperature state is further based on a current flow command, as shown in box 162 in figure 3b.

Re: claim 6, Lentz shows said flow command is further based on a heat rate of said friction device and a sump temperature of said flow of fluid, as shown in boxes 160, 162 in figure 3b.

Re: claim 7, Lentz shows said flow control device 82 is one of a fixed displacement pump, a variable displacement pump, an on/off valve and a variable opening valve.

Re claims 8 and 9, Lentz shows said temperature state is a temperature of said friction device and is a thermal energy of said friction device, as shown in figure 1.

Re: claim 10, Lentz shows a method of controlling cooling of a friction device, as in the present invention, comprising: estimating a temperature state of said friction device in box 160 of figure 3b based on an estimated heat rate of said friction device as shown in figure 7; calculating a flow command based on said temperature state, and controlling a cooling fluid flow through said friction device based on said flow command in box 170.

Re: claim 12, Lentz uses various sensors with output signals 56-62 to determine a friction device torque and a friction device slip speed and calculates said heat rate of

said friction device based on said friction device torque and said friction device slip speed signal.

Re: claim 13, Lentz measures the temperature with a sensor that outputs signal 66.

Re: claim 14, Lentz also shows said temperature state is further based on a current flow command, as shown in box 162 in figure 3b.

Re: claims 15 and 16, Lentz shows said flow command is further based on a heat rate of said friction device and a temperature of said fluid flow, as shown in boxes 160, 162 in figure 3b.

Re: claim 17, Lentz shows figure 3b with box 170 controlling fluid flow as claimed.

Re claims 18 and 19, Lentz shows said temperature state is a temperature of said friction device and is a thermal energy of said friction device, as shown in figure 1.

Re: claim 20, Lentz shows a method of controlling cooling of a friction device, as in the present invention, comprising: calculation a heat rate of said friction device 14 and estimating a temperature sate of said friction device based on said heat rate in box 160 of figure 3b; determining a flow command based on said temperature state and operating a flow control device 82 based on said flow command to control a cooling fluid flow into said friction device 14 in box 170.

Re: claim 21, Lentz uses various sensors with output signals 56-62 to determine a friction device torque and a friction device slip speed and calculates said heat rate of

said friction device based on said friction device torque and said friction device slip speed signal.

Re: claim 22, Lentz measures the temperature with a sensor that outputs signal 66.

Re: claim 23, Lentz also shows said temperature state is further based on a current flow command, as shown in box 162 in figure 3b.

Re: claim 24, Lentz shows figure 3b with box 170 controlling fluid flow as claimed.

Re claims 25 and 26, Lentz shows said temperature state is a temperature of said friction device and is a thermal energy of said friction device, as shown in figure 1.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-10 and 12-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Buchanan et al. (USP 6,715,597).

Re: claim 1, Buchanan et al. show a cooling system for cooling a friction device, as in the present invention, comprising: a flow control device 94 that controls a flow of cooling fluid through said friction device; and a controller that estimates a temperature state of said friction device based on an estimated heat rate of said friction device as

shown in boxes 242 and 256 of figure 3A, calculates a flow command based on said temperature state and operates said flow control device based on said flow command as shown in box 258.

Re: claim 3, Buchanan determines a friction device torque and a friction device slip speed and calculates said heat rate of said friction device based on said friction device torque and said friction device slip speed signal as shown in box 254.

Re: claim 4, Buchanan also shows a sump 90 for collecting said flow of fluid; and a sump temperature sensor that generates a sump temperature signal, wherein said temperature state is further based on said sump temperature signal as shown in box 258.

Re: claim 5, Buchanan also shows said temperature state is further based on a current flow command, as shown in box 256 in figure 3A.

Re: claim 6, Buchanan shows said flow command is further based on a heat rate of said friction device and a sump temperature of said flow of fluid, as shown in box 258 in figure 3A.

Re: claim 7, Buchanan shows said flow control device 94 is one of a fixed displacement pump, a variable displacement pump, an on/off valve and a variable opening valve.

Re claims 8 and 9, Buchanan shows said temperature state is a temperature of said friction device and is a thermal energy of said friction device, as shown in figure 3A.

Re: claim 10, Buchanan shows a method of controlling cooling of a friction device, as in the present invention, comprising: estimating a temperature state of said

friction device based on an estimated heat rate of said friction device in boxes 242 and 256 of figure 3A; calculating a flow command based on said temperature state 258, and controlling a cooling fluid flow through said friction device based on said flow command in box 236.

Re: claim 12, Buchanan determines a friction device torque and a friction device slip speed and calculates said heat rate of said friction device based on said friction device torque and said friction device slip speed signal in box 254.

Re: claim 13, Buchanan measures the temperature with a sensor in box 242.

Re: claim 14, Buchanan also shows said temperature state is further based on a current flow command, as shown in box 256 in figure 3A.

Re: claims 15 and 16, Buchanan shows said flow command is further based on a heat rate of said friction device and a temperature of said fluid flow, as shown in box 258.

Re: claim 17, Buchanan shows in figure 3A said step of controlling fluid flow as claimed.

Re claims 18 and 19, Buchanan shows said temperature state is a temperature of said friction device and is a thermal energy of said friction device, as shown in box 242.

Re: claim 20, Buchanan shows a method of controlling cooling of a friction device, as in the present invention, comprising: calculation a heat rate of said friction device in box 254; estimating a temperature state of said friction device based on said heat rate in box 256; determining a flow command based on said temperature state 258

and operating a flow control device 94 based on said flow command to control a cooling fluid flow into said friction device in box 236.

Re: claim 21, Buchanan determines a friction device torque and a friction device slip speed and calculates said heat rate of said friction device based on said friction device torque and said friction device slip speed signal in boxes 244, 252, 254.

Re: claim 22, Buchanan measures the temperature with a sensor in box 242.

Re: claim 23, Buchanan also shows said temperature state is further based on a current flow command as shown in box 256.

Re: claim 24, Buchanan shows figure 3A controlling fluid flow as claimed.

Re claims 25 and 26, Buchanan shows said temperature state is a temperature of said friction device and is a thermal energy of said friction device in box 258.

Response to Arguments

5. Applicant's arguments filed 3/21/06 have been fully considered but they are not persuasive.

Applicant argues that Lentz does not teach a cooling system but is directed toward accounting for temperature changes in the hydraulic fluid used to actuate the friction device. It is believed that "accounting for temperature changes" would including cooling effects based on a certain pump speed. It is believed that Applicant's argument is more specific than the claim language. Furthermore, it is noted that Applicant's friction device as described in page 4 of the specification to be an electro-hydraulically controlled device. It is well known that hydraulic is used as an actuating/cooling fluid.

Therefore, even though Lentz's hydraulic fluid is not described as a cooling fluid. It is believed that it is well known for hydraulic fluid to act as a cooling fluid while actuating the clutch.

Applicant argues that Buchanan uses two temperature sensors while Applicant's invention uses only one temperature sensor. Again, Applicant's argument is more specific than the claim language. The claimed invention does not specify the number of temperature sensors. It is maintained that Buchanan teaches the claimed invention as stated in the rejection above.

Based on the above reasons, it is determined that Lentz and Buchanan teach the claimed invention. The rejections are still deemed proper and are repeated above.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Nguyen whose telephone number is (571) 272-7121. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan can be reached on (571) 272-6786. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lan Nguyen
Primary Examiner
Art Unit 3683

Lan Nguyen 6/7/06